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rary appointments even after the salary is increased; and the promotion from an instructorship to an assistant professorship, while it carries with it encouragement and expectation of later permanence, does not immediately commit the university to a guarantee of permanent tenure. This is reasonable, for, if the instructor for any reason does not fit the particular position, after a trial of a few years, no one interested in the welfare either of the university or of the instructor himself would desire that he be promoted to a professorial position. Similarly if, after a few years, the assistant professor fails to fulfil the expectations which accompanied his promotion or appointment or if he apparently has reached the limit of his growth in the environment of the particular institution, no one can fairly object to his being advised, or urged if necessary, to seek elsewhere to establish his permanent professional position, provided, of course, that he is given ample time and friendly assistance to make the change.

At Brown, those teachers, whether professors, associate professors or assistant professors who, as distinguished from these younger men, have served the university many years and have been encouraged to believe or allowed to suppose that their services have been satisfactory until the time is past for a reasonably fair chance of readjustment in other positions, are insured by the university's policy of tenure against being "cajoled, crowded or thrust out of the Brown faculty." Contrary to the inference which would naturally be drawn from Mr. Gunn's paragraph, such service at Brown University "is regarded as establishing a claim that prevents removal on the ground of natural unfitness." The administration recognizes its responsibility in case it fails to diagnose natural unfitness in the course of the years of probational service.

In view of this recognized policy there is in the university a feeling of security of tenure and there is also an academic freedom of opinion, utterance and action which is ideal

and is highly valued and appreciated by the faculty.

A. D. MEAD

BROWN UNIVERSITY

#### CORRESPONDENCE WITH THE INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE

THE secretary of the International Commission on Zoological Nomenclature feels constrained to invite the attention of the members of the zoological profession to an important point in connection with the subject of correspondence.

The commission is composed of fifteen members, elected by the International Congress of Zoology. The duties involve a considerable amount of tedious labor. All of the members give their time willingly to this work from a pure sense of duty to science and to their profession. They do not ask nor do they receive one cent of remuneration for the many hours of time and work they sacrifice in order to endeavor to carry out the duties imposed upon them.

At the urgent request of colleagues, additional labors have been undertaken that were not contemplated when the commission was originally formed in 1895.

With the increase of duties, the correspondence has naturally grown to not inconsiderable proportions, and this additional correspondence brings with it increased labor and increased sacrifice of time.

It is a pleasure to acknowledge the fact that many of the members of the profession seek to aid the commission by valuable suggestions and it seems needless to state that this friendly cooperation is heartily welcomed and appreciated.

Some zoologists, however, appear to overlook the history, duties and purposes of the commission, and appear to assume that one of its objects and duties is to receive and read communications couched in language which is hardly within the bounds of diplomatic usage.

As the executive officer of the commission, and assuming full personal responsibility for this action, taken without consulting the other members, the secretary desires to give public notice that he insists that the same

courtesies be extended to the commission which it is customary to extend to other judicial bodies and other international committees. Suggestions, advice and objective arguments are welcomed, but polemics of all kinds will be consigned, unconsidered and unanswered, to the waste paper basket.

This public notice is given only after receipt of a number of letters couched in terms which it is exceedingly difficult to construe as within the bounds of professional courtesy or diplomatic usage.

CH. WARDELL STILES,  
*Secretary*

#### THE ZOOLOGICAL RECORD

*The Zoological Record*, published annually by the Zoological Society of London, is now also the zoological volume of the International Catalogue of Scientific Literature, and is prepared with the active cooperation of the United States government, through the Smithsonian Institution. In spite of this, when the volume for 1909 came to hand recently, I was called upon to pay \$2.50 duty, a larger sum than ever before. I thereupon applied to the Smithsonian Institution, and was informed that the *Record* appeared to be entitled to free entry, according to item 517 on page 71 of the Aldrich-Payne Tariff Bill of 1909. Armed with this information, I took up the matter with the U. S. Treasury, and after a lengthy correspondence with the authorities in Washington, New York and St. Louis, have received a check for the amount paid. I publish these facts for the information of other subscribers. It should be added, that not only is the *Record* entitled to free entry, but all "books and publications issued for their subscribers or exchanges by scientific and literary associations or academies."

T. D. A. COCKERELL

#### PRIMITIVE COPPER HARDENING

TO THE EDITOR OF SCIENCE: In his notably sane address on "The Lost Arts of Chemistry,"<sup>1</sup> Dr. W. D. Richardson refers to the question, much mooted among archeologists,

<sup>1</sup> SCIENCE, Vol. XXXIII., 1911, p. 513 et seq.

concerning the hardening of copper in primitive art. While his general conclusion seems just, it is nevertheless liable to be questioned by collectors of primitive artifacts in this country and perhaps elsewhere. Some personal investigation of primitive copper artifacts indicates that for two reasons these are sometimes harder than is ordinarily attained by modern artisans. (1) While ordinary copper artifacts exhumed from mounds and other burial places are commonly coated with the green oxide, the edges of knives and sometimes other portions are patinated; and usually the patina (which may extend on both sides of the blade quite to its edge) is decidedly harder, albeit more brittle, than the unchanged copper. Not infrequently this patina is mistaken for the normal condition of the metal; and the collector regards his artifact as an evidence of artificial hardening beyond the reach of modern artisans. (2) Judging both from the condition of the prehistoric artifacts and from the methods pursued by primitive artisans, the copper implements of the American aborigines were commonly hardened by hammering, albeit rather adventitiously than intentionally. Now, in the process of working, the tools employed (corresponding to hammer and anvil) were not of steel or other resilient metal, but of stone; and experiment indicates that under the blows of an inelastic stone hammer on a thin blade resting on an inelastic stone anvil, the successive impacts are not so well distributed throughout the mass of the metal as are those produced by resilient steel tools; so that the blade undergoes a sort of skin-hardening, naturally culminating in the cutting edge. Of course this effect might easily be imitated by a modern artisan using primitive tools; yet it is a factor to be reckoned with in considering the widespread belief in the superior hardness of primitive copper artifacts. Speaking broadly, the notion of lost arts, which Dr. Richardson effectively combats, is a mischievous one. Of course throughout the long, devious and vacillating course of human progress, arts have disappeared—usually because replaced by superior arts. The indus-